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Review article

After geneticization

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ABSTRACT

The concept of geneticization belongs to a style of thinking within the social sciences that refers to wide-ranging processes and consequences of genetic knowledge. Lippman's original use of the term was political, anticipating the onerous consequences of genetic reductionism and determinism, while more recent engagements emphasise the productivity and heterogeneity of genetic concepts, practices and technologies. This paper reconstructs the geneticization concept, tracing it back to early political critiques of medicine. The argument is made that geneticization belongs to a style of constructionist thinking that obscures and exaggerates the essentializing effects of genetic knowledge. Following Hacking's advice, we need a more literal sense of construction in terms of 'assembly' to give a clearer account of the relationship between processes and products. Using the 'assemblage' concept to explore the social ontology of genetics, the paper reviews three areas of the empirical literature on geneticization – disease classification, clinical practice and biosociality – to show that a new style of thinking has appeared within the social sciences. In the final assessment, the conditions that gave rise to geneticization are now obsolete. While it may serve as a useful ritual of debate, conceptually geneticization offers a limited account of the heterogeneity of socio-technical change.

1. Introduction

Since the early 1990's, the concept of 'geneticization' has become a watchword among critical commentators concerned with the increasing application of genetic medicine. Like 'ization' words more generally, it belongs to a style of thinking within the social sciences that refers to wide-ranging processes and consequences. Such words have been the bread and butter of sociology because they awaken the imagination and disrupt the naturalness of social order. The more shocking the change, the more we take notice. Geneticization has excellent shock value because it anticipates the potentially negative political consequences of genetic reductionism and determinism.

Perhaps we can treat geneticization as a symptom of how the social sciences think about biological science, and how this style of thinking has changed. In the last couple of decades, social scientists have questioned the extent to which reductionism and determinism are actual properties of genetic knowledge, let alone pervasive forces of social control. A consistent objection to this thesis is the hyperbole of its theoretical claims. Concerns about the very nature of socio-technical change have engendered two complementary responses: some re-articulate the transformational agenda of the 'new genetics' through a more nuanced view of power, while others pursue an empirical agenda of carefully exposing the contingency of geneticization. An important theme that runs through these debates is the varieties of constructionism that seek to analyse biomedical change in terms of its processes and consequences.

This paper aims to reconstruct the geneticization thesis by tracing it back to early political critiques of medicine. Both medicalization and geneticization belong to a family of radical political thought which seeks to liberate the oppressed from biomedical totalities and essences. I will argue that the constructionist style of thinking that underpins these critiques obscures and exaggerates the nature of socio-technical change. In the wake of geneticization, a style of thinking has emerged within the social sciences that embrace the contingency and multidimensionality of biological science. To illustrate this, the paper offers an analytical review of empirical studies that, in various ways, engage with the geneticization thesis. Three domains are explored – disease classification, clinical practice and biosociality – to assess the conceptual utility of geneticization. There are several questions that guide the following inquiry: is geneticization good to think with? Does it accurately describe current developments in biomedicine? And what can we learn from its conceptual history? It is the last of these questions

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with which I begin.

2. The geneticization thesis

The concept of geneticization entered circulation through the work of Lippman, a radical epidemiologist and dedicated activist for women's health. Over the course of three papers (1991, 1992, 1994), she developed a detailed account of geneticization as 'an ongoing process by which differences between individuals are reduced to their DNA codes, with most disorders, behaviours and physiological variations defined, at least in part, as genetic in origin' (1991: 19). The concept encompasses an extraordinary range of processes and effects, a brief summary of which includes: *expansion* of health and illness via genetic technologies; *differentiation* of individuals on the basis of genetic variation; *construction* of biological phenomena through inappropriate labelling of health and disease as 'genetic' rather than social, structural or environmental; *political economy* of disease prediction and prevention; and *socio-cultural* expectations that reinforce the use of genetic technologies, especially in the context of women's reproductive choices.

Lippman's account of human genetics reflects strong political concerns towards science that begin to emerge in the late 1980s. The new alliance between feminism and constructionism challenged modernist narratives of technological progress and scientific objectivism (Harding, 1986; Haraway, 1988). A fertile ground for feminist critique was the objection that science creates 'essences' which effectively naturalize social categories. Geneticization is the extension of feminist arguments about the oppressive use of biology which feeds into a cluster of concerns about:

- *Genetic reductionism* – a scientific methodology that explains biological traits in terms of specific gene functions
- *Genetic determinism* – gene function has powerful causal properties that exclude environmental influences for traits such as disease and behaviour
- *Genetic essentialism* – genes are immutable attributes that impute the identity and function of human life

Many writing about the 'new genetics' have tapped into one or more of these themes. Alpers and Beckwith (1993) express concern that reinstating ideas that traits are 'genetically determined' may justify discrimination and inequality. Nelkin and Lindee (1995: 2) argue that the dominance of modern genetics in popular culture is synonymous with 'genetic essentialism', which 'reduces the self to a molecular entity, equating human beings, in all their social, historical, and moral complexity, with their genes'. Others emphasise that genetic technologies transform human understanding because the gene is a symbol of personhood, identity and social relationships (Hoedemaekers & ten Have, 1998). In this vein, Katz Rothman (1998) writes that genetics is an 'ideology' that explains *everything*: 'Genetics is the single best explanation, the most comprehensive theory since God. Whatever the question is, genetics is the answer' (1998: 13). Van Dijck presents a less unified view of genetics in popular culture. She argues that genetics is a cultural narrative of 'images and imaginations' (1998: 2) that passes through successive stages of historical development.

It is worth noting that these themes are much broader than Lippman's original thesis. This is partly because many of these writers are exploring the public life of genetics as cultural symbols, narratives and prevailing ideas that redefine personhood, identity and sociality. Lippman's account of genetics is a critique of the medical establishment. Indeed, she refers to the 'extensive literature on medicalization' (1991: 27) as a precursor to many of her concerns about prenatal testing. Hedgecoe (1998, 1999) and others (ten Have, 2001; Shostak et al., 2008) have also noted the close relationship between geneticization and medicalization. It is the conceptual origins of the latter to which I now want to turn.

3. Medicalization

Medicalization shares more than a presumed resemblance to geneticization – the medicalization literature is also an intellectual foundation of sociology's thinking toward biological science. Medicalization has become a staple concept of sociology in adjudicating the relationship between science and society. Most commentators seem to agree that it describes a process of development and change in Western medicine often located within a broader thesis of 'modernization' (Bell and Figert, 2012). The diverse origins of the concept point to an ethos of 'anti-medicine' (Osborne, 1994), a mode of thinking concerned with how medicine developed without regard for the people it serves. The same kind of thinking is preserved in the idea that new genetic technologies are essentially repressive. I want to comment on the political context out of which this style of thinking emerges.

Gerhardt (1989) traces the origins of medicalization to the political turmoil in Europe in the late 1960s, and the perceived failure of Marxism after the 1968 student revolutions. One line of argument emerging in the 1970s focussed on the political economy of health and the growing scepticism towards 'power, profit and politics' of the American healthcare system (Ehrenreich and Ehrenreich, 1970). Another line of argument developed out of the Chicago School broke ranks with Marxism and Parsonian structural functionalism. It understood professional dominance as power to define *deviance*, which formed part of a general cultural pattern of 'blaming the victim' (Ryan, 1971). Freidson (1970) was one of the first to draw on the social construction of professional knowledge. He argued that medicine creates its own privileged universe of knowledge which serves the interests of insiders while objectifying those on whom the knowledge is practiced. Zola (1972, 1975) extended Freidson's ideas in two ways: first, medicine is an 'institution of social control' designed to extend medical jurisdiction, and second, the medicalization of deviance stigmatizes the vulnerable and the powerless.

The idea that medicalization is caused by wider social processes was popularized by Illich's (1976) cultural critique of medicine. What he called the 'medicalization of life' was a full-scale attack on modern society being colonized by three levels of 'iatrogenesis': illness was a by-product of medical treatment at the clinical, social and structural level. A key aspect of Illich's argument is that processes of over-industrialization and bureaucratization of healthcare alienate the person from his or her own body and render them dependent upon medical professionals. However, others claim that these processes are a consequence of political power (Navarro, 1986). Medicalization reproduces a class structure in capitalist society by serving the interests of powerful groups (Waitzkin, 1983) and by creating a system of healthcare around 'commodity fetishism' (Navarro, 1975). In contrast, a social constructionist framework shows that medicalization is a more heterogeneous phenomenon of not only controlling deviance (Conrad, 1975), but allowing various social movements and interest groups to advocate a medical diagnosis for 'new' conditions (Conrad, 1992; Conrad and Schneider, 1980).

Feminist writers have also taken up the medicalization thesis to show how patriarchal institutions use definitions of illness and disease to maintain the inequality of women. They strongly criticize the ways in which women's bodies and experiences have been disproportionately medicalized (Riessman, 1983). Resonating with Lippman's (1991) concerns about geneticization and pregnancy, these studies tend to focus on the explicitly material relations through which pregnancy and child birth are brought under